

What is claimed is :

506a57

1. A three-color pixel element for a display comprising:
 - a blue emitter disposed at the origin of a rectangular coordinate system having four quadrants;
 - 5 a pair of red emitters spaced apart from said blue emitter and symmetrically disposed about said origin in a first pair of opposing quadrants of said rectangular coordinate system; and
 - a pair of green emitters spaced apart from said blue emitter and symmetrically disposed about said origin in a second pair of opposing quadrants of said rectangular coordinate system.
2. The three-color pixel element of claim 1 wherein:
 - said blue emitter is polygonal having corners aligned at x and y axes of said rectangular coordinate system;
 - said red emitters are polygonal, each having an inwardly-facing edge parallel to a side of said polygonal blue emitter; and
 - said green emitters are polygonal, each having an inwardly-facing edge parallel to a side of said polygonal blue emitter.
3. The three-color pixel element of claim 2 wherein:
 - said blue emitter is four-sided having equal internal angles, having corners aligned at x and y axes of said rectangular coordinate system;

10
15
20
25
30
35
40
45
50
55
60
65
70
75
80
85
90
95
100

said red emitters are four-sided having equal internal angles, each having a truncated inwardly-facing corner forming an edge parallel to a side of said four-sided blue emitter; and

said green emitters are four-sided having equal internal angles, each having a truncated inwardly-facing corner forming an edge parallel to a side of said four-sided blue emitter.

4. The three-color pixel element of claim 3 wherein:

said blue emitter is square having corners aligned at x and y axes of said rectangular coordinate system;

said red emitters are square, each having a truncated inwardly-facing corner forming an edge parallel to a side of said square blue emitter; and

said green emitters are square, each having a truncated inwardly-facing corner forming an edge parallel to a side of said square blue emitter.

5. The three-color pixel element of claim 1 wherein:

said blue emitter is square-shaped having sides aligned parallel to x and y axes of said rectangular coordinate system; and

said red emitters and said green emitters are L-shaped and envelop said square blue emitter.

6. A three-color pixel element for a display comprising:

a pair of red emitters symmetrically disposed about the origin of a rectangular coordinate system having four quadrants in a first pair of opposing quadrants;

a pair of green emitters symmetrically disposed about said origin of said rectangular coordinate system in a second pair of opposing quadrants; and

a blue emitter disposed at said origin of said rectangular coordinate system, said blue emitter having an emitting area larger than that of each of said red emitters and said green emitters.

7. The three-color pixel element of claim 6 wherein:

said blue emitter is polygonal having corners aligned at x and y axes of said rectangular coordinate system;

said red emitters are polygonal, each having an inwardly-facing edge parallel to a side of said polygonal blue emitter; and

said green emitters are polygonal, each having an inwardly-facing edge parallel to a side of said polygonal blue emitter.

8. The three-color pixel element of claim 7 wherein:

said blue emitter is four-sided having equal internal angles, having corners aligned at x and y axes of said rectangular coordinate system;

said red emitters are four-sided having equal internal angles, each having a truncated inwardly-facing corner forming an edge parallel to a side of said four-sided blue emitter; and

said green emitters are four-sided having equal internal angles, each having a truncated inwardly-facing corner forming an edge parallel to a side of said four-sided blue emitter.

9. The three-color pixel element of claim 8 wherein:

said red emitters are square, each having a truncated inwardly-facing corner forming an edge parallel to a side of said square blue emitter; and

5 said green emitters are square, each having a truncated inwardly-facing corner
forming an edge parallel to a side of said square blue emitter.

10. The three-color pixel element of claim 6 wherein:

said blue emitter is square-shaped having sides aligned parallel to x and y axes of said rectangular coordinate system; and

said red emitters and said green emitters are L-shaped and envelop said square blue emitter.

505a77 11. A three-color pixel element for a display comprising:

a pair of red emitters symmetrically disposed about the origin of a rectangular coordinate system having four quadrants in a first pair of opposing quadrants;

a pair of green emitters symmetrically disposed about said origin of said rectangular coordinate system in a second pair of opposing quadrants; and

a blue emitter disposed at said origin of said rectangular coordinate system,
said blue emitter having a larger drive-to-luminance gain than that of each of said red
emitters and said green emitters.

20 12. The three-color pixel element of claim 11 wherein:

said blue emitter is polygonal having corners aligned at x and y axes of said rectangular coordinate system;

said red emitters are polygonal, each having an inwardly-facing edge parallel to a side of said polygonal blue emitter; and

said green emitters are polygonal, each having an inwardly-facing edge parallel to a side of said polygonal blue emitter.

13. The three-color pixel element of claim 12 wherein:

said blue emitter is four-sided having equal internal angles, having corners aligned at x and y axes of said rectangular coordinate system;

said red emitters are four-sided having equal internal angles, each having a truncated inwardly-facing corner forming an edge parallel to a side of said four-sided blue emitter; and

said green emitters are four-sided having equal internal angles, each having a truncated inwardly-facing corner forming an edge parallel to a side of said four-sided blue emitter.

14. The three-color pixel element of claim 13 wherein:

said blue emitter is square having corners aligned at x and y axes of said rectangular coordinate system;

said red emitters are square, each having a truncated inwardly-facing corner forming an edge parallel to a side of said square blue emitter; and

said green emitters are square, each having a truncated inwardly-facing corner forming an edge parallel to a side of said square blue emitter.

15. The three-color pixel element of claim 11 wherein:

said blue emitter is square-shaped having sides aligned parallel to x and y axes of said rectangular coordinate system; and

said red emitters and said green emitters are L-shaped and envelop said square blue emitter.

5 505a 116. A three-color pixel element in the shape of a square for a display

comprising:

a pair of red emitters, outer corners of each forming a first two opposing corners of a square;

a pair of green emitters, outer corners of each forming a second two opposing corners of said square; and

a blue emitter disposed at the center of said square.

10 505a 117. The three-color pixel element of claim 16 wherein:

said blue emitter disposed at the center of said square and is polygonal having sides aligned such that imaginary lines perpendicularly bisecting each side pass through the corners of said polygon;

said red emitters are polygonal, each having an inwardly-facing edge parallel to an edge of said polygonal blue emitter; and

said green emitters are polygonal, each having an inwardly-facing edge parallel an edge of said polygonal blue emitter.

20 505a 118. The three-color pixel element of claim 17 wherein:

said blue emitter disposed at the center of said square and is four-sided having equal internal angles, having sides aligned such that imaginary lines perpendicularly bisecting each side pass through the corners of said square;

said red emitters are four-sided having equal internal angles, each having a truncated inwardly-facing corner forming a line parallel to an edge of said four-sided blue emitter; and

said green emitters are four-sided having equal internal angles, each having a truncated inwardly-facing corner forming an edge parallel to a side of said four-sided blue emitter.

10 505 a 87 19. The three-color pixel element of claim 18 wherein:

said blue emitter disposed at the center of said square and is square-shaped having sides aligned such that imaginary lines perpendicularly bisecting each side pass through the corners of said square;

said red emitters are square-shaped, each having a truncated inwardly-facing corner forming a line parallel to an edge of said square-shaped blue emitter; and

said green emitters are square-shaped, each having a truncated inwardly-facing corner forming an edge parallel to a side of said square-shaped blue emitter.

505 a 87 20. The three-color pixel element of claim 16 wherein:

said blue emitter disposed at the center of said square and is square-shaped having sides parallel to the sides of said square; and

said red emitters and said green emitters are L-shaped and envelop said square-shaped blue emitter.

505 a 7 21. A three-color pixel element in the shape of a square for a display comprising:

a pair of red emitters, outer corners of each forming a first two opposing corners of a square;

5 a pair of green emitters, outer corners of each forming a second two opposing corners of said square; and

a blue emitter disposed at the center of said square, wherein said blue emitter having an emitting area larger than that of each of said red emitters and said green emitters.

10 505 a 7 22. The three-color pixel element of claim 21 wherein:

said blue emitter disposed at the center of said square and is polygonal having sides aligned such that imaginary lines perpendicularly bisecting each side pass through the corners of said polygon;

15 said red emitters are polygonal, each having an inwardly-facing edge parallel to an edge of said polygonal blue emitter; and

said green emitters are polygonal, each having an inwardly-facing edge parallel an edge of said polygonal blue emitter.

505 a 7 23. The three-color pixel element of claim 22 wherein:

20 said blue emitter disposed at the center of said square and is four-sided having equal internal angles, having sides aligned such that imaginary lines perpendicularly bisecting each side pass through the corners of said square;

said red emitters are four-sided having equal internal angles, each having a truncated inwardly-facing corner forming a line parallel to an edge of said four-sided blue emitter; and

said green emitters are four-sided having equal internal angles, each having
5 a truncated inwardly-facing corner forming an edge parallel to a side of said four-sided blue emitter.

505 a 7 24. The three-color pixel element of claim 23 wherein:

said blue emitter disposed at the center of said square and is square-shaped having sides aligned such that imaginary lines perpendicularly bisecting each side pass
10 through the corners of said square;

said red emitters are square-shaped, each having a truncated inwardly-facing corner forming a line parallel to an edge of said square-shaped blue emitter; and

said green emitters are square-shaped, each having a truncated inwardly-facing corner forming an edge parallel to a side of said square-shaped blue emitter.

15 505 a 7 25. The three-color pixel element of claim 21 wherein:

said blue emitter disposed at the center of said square and is square-shaped having sides parallel to the sides of said square; and

said red emitters and said green emitters are L-shaped and envelop said square-shaped blue emitter.

20 505 a 7 26. A three-color pixel element in the shape of a square for a display comprising:

a pair of red emitters, outer corners of each forming a first two opposing corners of a square;

a pair of green emitters, outer corners of each forming a second two opposing corners of said square; and

5 a blue emitter disposed at the center of said square, wherein said blue emitter having a larger drive-to-luminance gain than that of each of said red emitters and said green emitters.

505a97 27. The three-color pixel element of claim 26 wherein:

10 said blue emitter disposed at the center of said square and is polygonal having sides aligned such that imaginary lines perpendicularly bisecting each side pass through the corners of said polygon;

said red emitters are polygonal, each having an inwardly-facing edge parallel to an edge of said polygonal blue emitter; and

15 said green emitters are polygonal, each having an inwardly-facing edge parallel an edge of said polygonal blue emitter.

505a97 28. The three-color pixel element of claim 27 wherein:

said blue emitter disposed at the center of said square and is four-sided having equal internal angles, having sides aligned such that imaginary lines perpendicularly bisecting each side pass through the corners of said square;

20 said red emitters are four-sided having equal internal angles, each having a truncated inwardly-facing corner forming a line parallel to an edge of said four-sided blue emitter; and

said green emitters are four-sided having equal internal angles, each having a truncated inwardly-facing corner forming an edge parallel to a side of said four-sided blue emitter.

505 a 7 29. The three-color pixel element of claim 28 wherein:

5 said blue emitter disposed at the center of said square and is square-shaped having sides aligned such that imaginary lines perpendicularly bisecting each side pass through the corners of said square;

said red emitters are square-shaped, each having a truncated inwardly-facing corner forming a line parallel to an edge of said square-shaped blue emitter; and

said green emitters are square-shaped, each having a truncated inwardly-facing corner forming an edge parallel to a side of said square-shaped blue emitter.

505 a 7 30. The three-color pixel element of claim 26 wherein:

said blue emitter disposed at the center of said square and is square-shaped having sides parallel to the sides of said square; and

said red emitters and said green emitters are L-shaped and envelop said square-shaped blue emitter.

505 a 7 31. An array for a display comprising:

a plurality of row positions;

a plurality of column positions; and

20 a plurality of three-color pixel elements, one of said elements disposed in each of said row positions and said column positions, each of said three-color pixel elements comprising:

a blue emitter disposed at the origin of a rectangular coordinate system having four quadrants;

a pair of red emitters spaced apart from said blue emitter and symmetrically disposed about said origin in a first pair of opposing quadrants of said rectangular coordinate system; and

a pair of green emitters spaced apart from said blue emitter and symmetrically disposed about said origin in a second pair of opposing quadrants of said rectangular coordinate system.

32. The array of claim 31 wherein the spatial frequency of each said three-color pixel element in the row direction is greater than in the column direction.

33. The array of claim 31 wherein the spatial frequency of each said three-color pixel element in the column direction is greater than in the row direction.

34. An array for a display comprising:

a plurality of row positions;

a plurality of column positions; and

a plurality of three-color pixel elements, one of said elements disposed in each of said row positions and said column positions, each of said three-color pixel elements comprising:

a pair of red emitters spaced apart from said blue emitters, outer corners of each forming a first two opposing corners of a square;

a pair of green emitters spaced apart from said blue emitters, outer corners of each forming a second two opposing corners of said square; and

a blue emitter disposed at the center of said square.

505a87 35. The array of claim 34 wherein the spatial frequency of each said three-color pixel element in the row direction is greater than in the column direction.

505a87 36. The array of claim 34 wherein the spatial frequency of each said three-color pixel element in the column direction is greater than in the row direction.

37. In an array of three-color pixel elements, a row structure comprising:

first and second three-color pixel elements, each three-color pixel element including first and second red emitters, first and second green emitters, and a blue emitter;

first and second row line drivers;

a first row line coupled to said first row line driver, said first row line coupled to said blue emitter of said second three-color pixel element, and said first red emitter and said first green emitter of said first and said second three-color pixel element;

a second row line coupled to said second row line driver, said second row line coupled to said blue emitter of said first three-color pixel element, and said second red emitter and said second green emitter of said first and said second three-color pixel element;

first through fifth column line drivers;

a first column line coupled to said first column line driver, said first column line coupled to said first red emitter and said first green emitter of said first three-color pixel element;

a second column line coupled to said second column line driver, said second column line coupled to said blue emitter of said first and said second three-color pixel element;

a third column line coupled to said third column line driver, said third column line coupled to said second red emitter and said second green emitter of said first three-color pixel element;

a fourth column line coupled to said fourth column line driver, said fourth column line coupled to said first red emitter and said first green emitter of said second three-color pixel element; and

a fifth column line coupled to said fifth column line driver, said fifth column line coupled to said second red emitter and said second green emitter of said second three-color pixel element.

38. An array comprising:

a plurality of rows, each row comprising:

first and second three-color pixel elements, each three-color pixel element including first and second red emitters, first and second green emitters, and a blue emitter;

first and second row line drivers;

a first row line coupled to said first row line driver, said first row line coupled to said blue emitter of said second three-color pixel element, and said first red emitter and said first green emitter of said first and said second three-color pixel element;

a second row line coupled to said second row line driver, said second row line coupled to said blue emitter of said first three-color pixel element, and said second red emitter and said second green emitter of said first and said second three-color pixel element;

5 first through fifth column line drivers;

a first column line coupled to said first column line driver, said first column line spanning said plurality rows, said first column line coupled to said first red emitter and said first green emitter of each said first three-color pixel element in each row;

10 a second column line coupled to said second column line driver, said second column line spanning said plurality of rows, said second column line coupled to each said blue emitter of said first and said second three-color pixel element in each row;

15 a third column line coupled to said third column line driver, said third column line spanning said plurality of rows, said third column line coupled to said second red emitter and said second green emitter of each said first three-color pixel element in each row;

a fourth column line coupled to said fourth column line driver, said fourth column line spanning said plurality of rows, said fourth column line coupled to said first red emitter and said first green emitter of each said second three-color pixel element in each row; and

20 a fifth column line coupled to said fifth column line driver, said fifth column line spanning said plurality of rows, said fifth column line coupled to said second red emitter and said second green emitter of each said second three-color pixel element in each row.

ADD
BS